

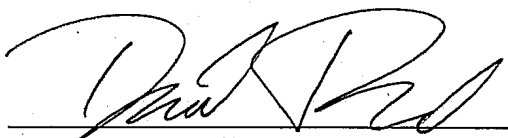
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PTO/SB/33 (07-05)

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PRE-APPEAL BRIEF REQUEST FOR REVIEW		Docket Number (Optional) 03-0605	
		Application Number 10/788,590	Filed 2/27/2004
		First Named Inventor Voorhees et al.	
		Art Unit 2111	Examiner F. Zaman
<p>Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.</p> <p>This request is being filed with a notice of appeal.</p> <p>The review is requested for the reason(s) stated on the attached sheet(s). Note: No more than five (5) pages may be provided.</p> <p>I am the</p> <p><input type="checkbox"/> applicant/inventor.</p> <p><input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)</p> <p><input checked="" type="checkbox"/> attorney or agent of record. Registration number <u>35512</u></p> <p><input type="checkbox"/> attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34. _____</p> <p>NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.</p> <p><input type="checkbox"/> *Total of _____ forms are submitted.</p>			

  
\_\_\_\_\_  
Signature  
  
Daniel Fishman  
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Typed or printed name  
  
303-786-7687  
\_\_\_\_\_  
Telephone number  
  
14 FEB 2007  
\_\_\_\_\_  
Date

This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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**NOTICE OF APPEAL FROM THE EXAMINER TO  
THE BOARD OF PATENT APPEALS AND INTERFERENCES**Docket Number (Optional)  
03-0605In re Application of  
Voorhees et al.Application Number  
10/788,590Filed  
2/27/2004For SYSTEMS AND METHODS FOR FLEXIBLE  
EXTENSION OF SAS EXPANDER PORTSArt Unit  
2111Examiner  
F. ZamanApplicant hereby **appeals** to the Board of Patent Appeals and Interferences from the last decision of the examiner.

The fee for this Notice of Appeal is (37 CFR 41.20(b)(1))

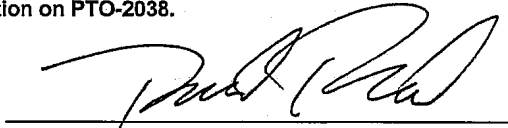
\$ 500.00

☐ Applicant claims small entity status. See 37 CFR 1.27. Therefore, the fee shown above is reduced by half, and the resulting fee is:

\$ \_\_\_\_\_

☐ A check in the amount of the fee is enclosed.☐ Payment by credit card. Form PTO-2038 is attached.☒ The Director has already been authorized to charge fees in this application to a Deposit Account. I have enclosed a duplicate copy of this sheet.☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 12-2252. I have enclosed a duplicate copy of this sheet.☐ A petition for an extension of time under 37 CFR 1.136(a) (PTO/SB/22) is enclosed.**WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**

I am the

☐ applicant/inventor.☐ assignee of record of the entire interest.  
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.  
(Form PTO/SB/96)☒ attorney or agent of record.  
Registration number 35512☐ attorney or agent acting under 37 CFR 1.34.  
Registration number if acting under 37 CFR 1.34. \_\_\_\_\_  
SignatureDaniel Fishman  
Typed or printed name303-786-7687  
Telephone number14 FEB 2007  
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below\*.

☐ \*Total of \_\_\_\_\_ forms are submitted.

This collection of information is required by 37 CFR 41.31. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 450, Alexandria, VA 22313-1450.

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Application Serial No. : 10/788,590  
Filed : 27 February 2004  
Applicants : W. Voorhees et al.  
Title : Systems and Methods for Flexible Extension of  
SAS Expander Ports  
Art Unit : 2111  
Examiner : F. Zaman  
Docket Number : 03-0605  
Date : 14 February 2007

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### **REQUEST FOR PRE-APPEAL BRIEF REVIEW**

Sir:

In response to the Final Office Action mailed 24 November 2006, in conjunction with the Notice of Appeal filed herewith, and in accordance with the procedure outlined in OG Notices (12 July 2005), please consider these remarks.

No amendment is being submitted with this request. This request is filed concurrently with a Notice of Appeal. Applicants hereby request review of the final rejection in the above-identified matter for the reasons stated herein below.

#### ***Reasons for Requested Review***

#### **1. Examiner has Failed to Establish a Prima Facie Case of Obviousness**

##### **1.1. REFERENCES FAIL TO SHOW A MULTI-CHIP MODULE (MCM)**

First and foremost, nothing in the art of record (considered individually or in any combination) teaches or reasonably suggests a SAS expander implemented as a Multi-Chip Module ("MCM") - the very essence of the invention. None of the references describe an MCM as the term is understood by those of ordinary skill in the art. This term of art is well understood to describe a single integrated circuit that is manufactured to incorporate one or more other integrated circuit dies or components. Such MCM devices are generally fabricated using integrated circuit fabrication techniques - notably distinct

from fabrication/assembly of printed circuit board cards and/or entire systems incorporating numerous such cards.

The references teach nothing of such an MCM structure for a SAS expander but rather teach structures of printed circuit cards and systems incorporating a plurality of such cards. This issue has been raised in the prior response. In this Final Office Action, the Examiner suggests that this limitation is not found in the claims. Applicants respectfully submit that a "multi-chip module" architecture has been a key element of the claims from their original filing. The Examiner then suggests in this Final Office Action that he is applying the "broadest reasonable interpretation" of the term "multi-chip module" to mean "any module containing multiple chips". Such an interpretation is clearly inconsistent with any reasonable understanding of the term of art by one of ordinary skill in the art. Would the Examiner suggest that a room-sized IBM System 360 of the 1960's, a device that clearly contains multiple chips, is a "multi-chip module" ("MCM") as the term of art would be understood by one of ordinary skill in the art? The Examiner's interpretation is *UN*reasonably *OVER*broad for a person of ordinary skill in the art.

Applicants recognize that the mere integration of previously distinct, discrete electronic components is not, without more, a patentable distinction. In this claimed invention much more is derived from this MCM architecture SAS expander than the mere integration of previously distinct/discrete components. Specific benefits attributable to the recited MCM integrated architecture that are novel and non-obvious are discussed in the specification of the subject application and are also recited in the claims. These benefits are either dismissed by the Examiner or improperly read on the prior art. Some of these benefits are discussed below.

## **1.2. REFERENCES FAIL TO SHOW COORDINATION LOGIC THAT INCLUDES STATIC ROUTING FEATURES**

As discussed in the earlier response, Bakke '532 individually or in the proposed combination with Badamo '476 fails to disclose coordination logic as recited by claim 1 that provides static routing features as claimed. The Examiner points to Badamo

paragraph 0041 in support of his assertion that the "routing" of FC(s) 20 in Badamo's figure 3 teaches such a static routing feature. As Applicants have already pointed out in prior responses, quite the opposite is taught by Badamo. Paragraph 0041 of Badamo in reference to his figure 3 reads as follows:

Any line card 22 can send traffic to any service card 24. This routing can be configured statically or can be determined dynamically by the line card 22. Any service card 24 can send traffic requiring ingress processing (e.g. from SC1 24' to SC2 24") to any other service card 24 for ingress processing. Line cards 22 with the capability to classify ingress traffic can thus make use of unused capacity on the ingress service cards 24 by changing the routing.

Though the word "static" is used by Badamo, it is clear to one of ordinary skill in the art that whatever "routing" is performed by FC 20 of Badamo it is dynamic or flexible. "Any line card 22 can send traffic to any service card 24." This is the very essence of a dynamic routing capability.

Badamo's paragraph 0039 just above paragraph 0041 further supports the dynamic routing capability of Badamo's FC 20 component stating (emphasis added): "The *flexible routing* therefore enables any service card 24 or line card 22, in particular a spare service card 24 or line card 22, to assume the role of another service card 24 or line card 22 *by only changing the routing through the switch fabric card (FC) 20.*" Again, this is the very essence of dynamic routing as understood by those of ordinary skill in the art.

By contrast, rejected claim 1 (for example) clearly recites that the internal fabric of the MCM that couples selected internal ports of the plurality of SAS expander components is "is static following initialization of the MCM." Since the plurality of SAS expander components are coupled internally to the MCM and present themselves as a single, integrated SAS expander (as discussed further below), the routes between the various expander components of the MCM are fixed or static following initialization of the MCM - there is no dynamic or flexible routing as required for the structures and methods of Badamo and Bakke. It is unreasonable for the Examiner to read the routing features of Badamo's FC 20 that are clearly dynamic and flexible in nature as teaching the recited static routing of, for example, rejected claim 1. Applicants have already

distinguished this feature from the teaching of Bakke in response to the Examiner's earlier rejections. This feature is neither taught nor reasonably suggested by Bakke, Badamo, or any of the art of record, either considered individually or in any combination.

### **1.3. REFERENCES FAIL TO SHOW COORDINATION LOGIC THAT PRESENTS A SINGLE INTEGRATED SAS EXPANDER IN RESPONSE TO SMP PROTOCOL EXCHANGES**

As also discussed in earlier responses, the prior art of record fails to show the claimed feature wherein the plurality of SAS expander components (coupled internally by a statically routed fabric) present a single integrated SAS expander as in SMP protocol exchanges. In SCSI Management Protocol ("SMP") a device responds to a single SAS address for management related exchanges. Each SAS expander would normally respond to its own unique SAS address. However, the invention of rejected claim 1 recites that the plurality of SAS expanders as configured in an MCM with the recited coordination logic forces the plurality of SAS expander components to present the plurality of components as a single, integrated SAS expander - i.e., a plurality of SAS expanders that interact and respond to a single SAS address - not multiple independent SAS addresses. Thus, to a management application, the MCM appears as a single integrated SAS expander although it comprises (as recited) multiple SAS expanders.

In the new grounds for rejection, the Examiner adds a combination of Bakke (and Badamo) with Seto and urges that Seto teaches the feature of presenting such a single integrated SAS expander for SMP exchanges. Apparently the Examiner fails to understand that the claimed MCM comprises multiple SAS expanders. As noted, such multiple SAS expanders (or any multiple of SAS devices) each respond to a single SAS address as regards SMP exchanges. Only with the recited coordination logic do the multiple SAS expander components of rejected claim 1 present themselves collectively as a single SAS expander in SMP exchanges. Seto is nothing more than exemplary of *any* well known SAS device that includes a capability to perform SMP exchanges - any SINGLE SAS device. The Examiner points to element 38C of Seto's figure 2 and

element 180 of figure 5A and associated text at paragraphs 0014 and 0023, respectively in support of his reading.

The cited portions of Seto do not show a device that has multiple SAS expanders (or other SAS devices) that respond as a single SAS device in SMP exchanges. Seto's figure 2 and associated text in paragraph 0014 shows an "adaptor" [sic] 12 that includes multiple adapters (12a and 12b of figure 1). Each of the adapters 12a and 12b may include an SMP link layer 38c. Nothing in Seto suggests that the two adapters 12a and 12b share a common SAS address in their SMP exchanges such that external device would perceive a single integrated SAS expander (or other SAS device). Rather, adapter 12a and 12b would each provide its own SMP layer 38c (and 40c and 48c) and its own corresponding SAS address in its respective SMP exchanges. Adapter 12 is a simple physical packaging of multiple SAS devices on a single circuit structure. Nothing in Seto suggests that this mere physical integration includes coordination logic as claimed in rejected claim 1 that presents two adapters (12a and 12b) as a single integrated adapter in SMP exchanges.

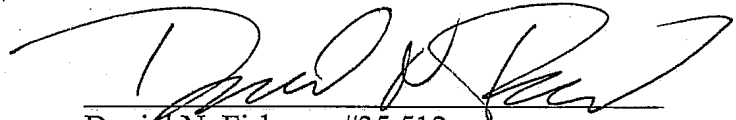
Seto's figure 5A and associated text at paragraph 0023 merely discusses the standard SAS architecture in which each SAS device (180, 182, 184, and 186 of figure 5A) has a unique SAS address ("x", "A", "B", and "C", respectively). As is well known, a single SAS device may comprise multiple PHYs (e.g., every SAS expander includes multiple PHYs). But such a standard SAS device responds to SMP exchanges only using the single unique address of the SAS device. Again, as above, the claimed MCM includes a plurality of SAS expanders (each of which has multiple PHYs or ports as is axiomatic for a SAS expander). Each of these plurality of SAS expander in the claimed MCM would normally have a unique SAS address (just as devices 180 through 186 of Seto's figure 5A each has a unique SAS address). However, the claimed invention further provides the recited coordination logic such that, for purposes of SMP exchanges, the recited multiple SAS expanders interact as a single integrated SAS expander. This feature is neither taught nor reasonably suggested by Bakke, Seto, or any of the art of record, either considered individually or in any combination.

***Conclusion***

In view of the above discussion, Applicants assert that independent claim 1 is allowable at least for the reasons stated above. At least these same arguments apply to independent claims 17 and 18, rejected by the Examiner for similar reasons and to dependent claims 2-9 and 12-14. Applicants respectfully request reconsideration and withdrawal of the outstanding rejections.

Applicants have submitted herewith a Notice of Appeal along with the appropriate fees therefore. Applicants believe no further fees are due in this matter. Should any issues remain, the Examiner is encouraged to telephone the undersigned attorney.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Daniel N. Fishman', is written over a horizontal line.

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